

CLAIMS

What is claimed is:

1. A method, in a computer-implemented optimization process based on a genetic model, for setting a characteristic of a system to be optimized, comprising:
 - 2 associating with the characteristic a set of values and a first index, the
 - 4 first index corresponding to a gene within a chromosome, the gene comprising a second index corresponding to a particular value in the set of values; and
 - 6 setting the characteristic in accordance with the particular value.
2. The method of claim 1, wherein a plurality of characteristics are associated with the same first index.
3. The method of claim 1, wherein a first characteristic and a second characteristic are associated with the same first index and, for each applicable value of the second index, the particular value in the set of values associated with the first 4 characteristic and the particular value in the set of values associated with the second characteristic are related by a predetermined ratio.
4. The method of claim 1, wherein associating with the characteristic a set of values and a first index comprises accessing a data structure, the data structure comprising a plurality of entries, each entry corresponding to a characteristic of the system to be optimized, each entry comprising the associated first index and set of values.

5. The method of claim 1, wherein the system to be optimized comprises an

2 integrated circuit.

6. The method of claim 5, wherein the characteristic comprises one of a cell type, a

2 transistor model, and a transistor width.

7. A method, in a computer-implemented optimization process based on a genetic

2 model, for mapping the characteristics of a system to be optimized to the genes of

a chromosome, the method comprising:

4 generating a lookup table having a plurality of entries, each entry

corresponding to a characteristic of the system to be optimized, each entry

6 comprising a set of values and a first index, the first index corresponding to a

gene in the chromosome, the gene comprising a second index corresponding to

8 a particular value in the set of values.

8. The method of claim 7, wherein a plurality of entries have the same first index.

9. The method of claim 7, wherein the entries corresponding, respectively, to a first

2 characteristic and a second characteristic have the same first index and, for each

applicable value of the second index, the particular value in the first entry and the

4 particular value in the second entry are related by a predetermined ratio.

10. The method of claim 7, wherein the system to be optimized comprises an

2 integrated circuit.

11. The method of claim 10, wherein at least one characteristic comprises one of a

2 cell type, a transistor model, and a transistor width.

12. A system programmed to perform the following method:

2 generating, in a computer-implemented process based on a genetic
model, a chromosome, the chromosome comprising a plurality of genes;
4 accessing a data structure, the data structure comprising a plurality of
entries, each entry corresponding to a characteristic of a device to be
6 optimized, each entry comprising a set of values and a first index, the first
index corresponding to a gene within the chromosome, the gene comprising a
8 second index corresponding to a particular value in the set of values; and
setting at least one characteristic in accordance with the particular
10 value.

13. The system of claim 12, wherein a plurality of characteristics are associated with

2 the same first index.

14. The system of claim 12, wherein a first characteristic and a second characteristic

2 are associated with the same first index and, for each applicable value of the
second index, the particular value in the set of values associated with the first
4 characteristic and the particular value in the set of values associated with the
second characteristic are related by a predetermined ratio.

15. The system of claim 12, wherein the device to be optimized comprises an

2 integrated circuit.

16. The system of claim 15, wherein the characteristic comprises one of a cell type, a
2 transistor model, and a transistor width.

17. A system for optimizing a device using a computer-implemented process based on
2 a genetic model, comprising:

means for generating a chromosome, the chromosome comprising a
4 plurality of genes;
means for accessing a data structure, the data structure comprising a
6 plurality of entries, each entry corresponding to a characteristic of the device
to be optimized, each entry comprising a set of values and a first index, the
8 first index corresponding to a gene within the chromosome, the gene
comprising a second index corresponding to a particular value in the set of
10 values; and

means for setting at least one characteristic in accordance with the
12 particular value.

18. A computer-readable storage medium containing program code for setting a
2 characteristic of a system to be optimized according to a process based on a
genetic paradigm, comprising:

4 a first code segment configured to associate with the characteristic a
set of values and a first index, the first index corresponding to a gene within a
6 chromosome, the gene comprising a second index corresponding to a
particular value in the set of values; and

8 a second code segment configured to set the characteristic in
accordance with the particular value.

19. The computer-readable storage medium of claim 18, wherein the first code
2 segment associates a plurality of characteristics with the same first index.

20. The computer-readable storage medium of claim 18, wherein a first characteristic
2 and a second characteristic are associated with the same first index and, for each
4 applicable value of the second index, the particular value in the set of values
associated with the first characteristic and the particular value in the set of values
associated with the second characteristic are related by a predetermined ratio.

21. The computer-readable storage medium of claim 18, wherein the first code
2 segment associates with the characteristic a set of values and a first index by
accessing a data structure, the data structure comprising a plurality of entries, each
4 entry corresponding to a characteristic of the system to be optimized, each entry
comprising the associated first index and set of values.

22. The computer-readable storage medium of claim 18, wherein the system to be
2 optimized comprises an integrated circuit.

23. The computer-readable storage medium of claim 22, wherein the characteristic
comprises one of a cell type, a transistor model, and a transistor width.